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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,364	03/30/2006	Antonius Leonardus Dekker	NL 031184	2293

24737 7590 02/06/2009
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
BIBBINS, LATANYA	
ART UNIT	**PAPER NUMBER**
2627	

MAIL DATE	DELIVERY MODE
02/06/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/574,364	DEKKER, ANTONIUS LEONARDUS
	Examiner	**Art Unit**
	LaTanya Bibbins	2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In the remarks filed on November 17, 2008**,** Applicant amended claims 1-15, added claims 16 and 17, and submitted arguments for allowability of pending claims 1-17.

Drawings

2. The drawings were received on November 17, 2008. These drawings are acceptable.

Response to Arguments

3. Applicant's arguments filed November 17, 2008 have been fully considered but they are not persuasive.

Regarding claims 1, 2 and 4-16, Applicant argues that while Ohta shows a disc rotational frequency in a range of 200 to 500 rpm and Baba shows an alternating signal at 250 Hz, neither Osborne, Ohta nor Baba disclose or suggest a relationship between the alternating signal and the disc rotational frequency.

Examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As indicated in the Office Action and acknowledged by Applicant, Ohta discloses a disc rotational frequency ranging from 200 to 500 rpm which equates to a disc

rotational frequency ranging from 3.33 Hz to 8.33 Hz and Baba shows an alternating signal of 250 Hz. As such, the combination of the cited references meet applicants claimed limitations of “wherein the alternating signal has a frequency higher than the disc rotational frequency” since the disc rotational frequency of 3.33 hertz to 8.33 hertz is less than the 250 Hz frequency of the alternating signal.

Regarding claims 3 and 17, Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. ***Claim 1-4 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view Ohta et al. (US Patent Number 6,067,285) and further in view of Baba (US Patent Number 5,768,227).***

Regarding claim 1, Osborne discloses an optical disc drive (Figures 7 and 8) comprising: a lens for focusing and positioning a radiation beam on an optical disc (see the objective lens, Figure 8 element 92), wherein the radiation beam is reflected by the optical disc (column 8 line 67 – column 9 line 2); means for causing the optical disc to rotate with a disc rotational frequency (see the spindle drive mechanism, Figure 7

element 76, and the discussion in column 11 lines 1-5), and detection means for receiving the reflected radiation beam and generating a radial error signal indicating a position of the lens relative to the optical disc (see the discussion in column 9 lines 26-39), lens position motor for moving the lens (see the voice coil motors ,Figure 8 elements 96 and 98, and the discussion in column 9 lines 7-10 and column 10 lines 47-50), a servo control circuit having a tracking mode for controlling the position of the lens in response to the radial error signal (see the discussion in column 9 line 26 – column 10 line 16 particularly regarding the three beam method), comprising a first motor control circuit for controlling the lens position motor (see the discussion in column 9 line 3-11 regarding the servo controlled actuators), wherein the control circuit further comprises means for applying an alternating signal to the lens position motor (see the discussion in column 10 lines 17-44 specifically regarding the dithering method).

Osborne, however, fails to specifically disclose the frequency of the alternating signal and the disc rotational frequency. Ohta, however discloses a disc rotational frequency ranging from 200 to 500 rpm (column 1 lines 41-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disc rotational frequency disclosed by Ohta into the optical disc drive of Osborne. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings such that the tracking servo performs sufficiently as suggested by Ohta (column 1 lines 41-44).

The combination of Osborne and Ohta do not specifically disclose the frequency of the alternating signal. Baba, however, discloses wherein the alternating signal has a

frequency higher than the disc rotational frequency (column 14 lines 26 and 27 where the objective lens is oscillated at 250 Hz).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate the frequency of the alternating signal as disclosed by Baba into the optical disc drive of Osborne and Ohta. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings “in order to obtain a maximum track crossing frequency of 10 kHz” (column 14 lines 24-26).

Regarding claim 2, the combination of Osborne, Ohta and Baba disclose the optical disc drive according to claim 1.

Baba further discloses the claimed invention except for an alternating signal having a frequency of 250 Hz versus an alternating signal having a frequency of substantially 2 kHz. However, it would have been an obvious matter of design choice to modify the frequency of the alternating signal since the applicant has not disclosed that having an alternating signal of 2 kHz solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with an alternating signal having a frequency of 250 Hz. Furthermore, it would have been obvious to a person of ordinary skill in the art to modify the frequency of the alternating signal, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp.

Regarding claim 3, the combination of Osborne, Ohta and Baba disclose the optical disc drive according to claim 1 for an optical disc having a given track pitch.

Baba further discloses wherein the alternating signal is of an amplitude sufficient to cause the lens to shake with an amplitude of at least about 0.8 to 1.0 times the track pitch (see the discussion in column 14 lines 13-51 particularly regarding a sine wave of ±10 μm and 250 Hz being applied to the objective lens and the track pitch of 1.6 μm, also note that when the objective lens is oscillated in a sine wave pattern it stops near its maximum and minimum points of its amplitude).

Regarding claim 4, the combination of Osborne, Ohta and Baba disclose the optical disc drive according to claim 1. Osborne further discloses a sledge for moving the lens position motor and the lens in radial direction relative to the optical disc (see the discussion in column 10 lines 55-62 regarding the carriage mechanism and Figure 7 elements 78 and 80), and a second motor for control of the sledge, wherein the servo control circuit comprises a second motor control circuit for controlling the second motor (see the discussion in column 10 lines 55-62 regarding the carriage mechanism and Figure 7 elements 78 and 80).

Regarding claim 15, Osborne discloses method for controlling the position of a lens in an optical disc drive, the method comprising acts of: causing an optical disc to rotate with a disc rotational frequency (see the spindle drive mechanism, Figure 7 element 76, and the discussion in column 11 lines 1-5); controlling the position of the lens with a lens position motor (see the voice coil motors ,Figure 8 elements 96 and 98, and the discussion in column 9 lines 7-10 and column 10 lines 47-50); wherein the method further comprises a step of applying an alternating signal to the lens position

motor (see the discussion in column 10 lines 17-44 specifically regarding the dithering method).

Osborne, however, fails to specifically disclose the frequency of the alternating signal and the disc rotational frequency. Ohta, however discloses a disc rotational frequency ranging from 200 to 500 rpm (column 1 lines 41-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disc rotational frequency disclosed by Ohta into the optical disc drive of Osborne. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings such that the tracking servo performs sufficiently as suggested by Ohta (column 1 lines 41-44).

The combination of Osborne and Ohta do not specifically disclose the frequency of the alternating signal. Baba, however, discloses wherein the alternating signal has a frequency higher than the disc rotational frequency (column 14 lines 26 and 27 where the objective lens is oscillated at 250 Hz).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate the frequency of the alternating signal as disclosed by Baba into the optical disc drive of Osborne and Ohta. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings “in order to obtain a maximum track crossing frequency of 10 kHz” (column 14 lines 24-26).

Regarding claim16, the combination of Osborne, Ohta and Baba disclose the method according to claim 15.

Baba further discloses the claimed invention except for an alternating signal having a frequency of 250 Hz versus an alternating signal having a frequency of substantially 2 kHz. However, it would have been an obvious matter of design choice to modify the frequency of the alternating signal since the applicant has not disclosed that having an alternating signal of 2 kHz solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with an alternating signal having a frequency of 250 Hz. Furthermore, it would have been obvious to a person of ordinary skill in the art to modify the frequency of the alternating signal, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp.

Regarding claim 17, the combination of Osborne, Ohta and Baba disclose the method according to claim 15, for an optical disc having a given track pitch. Baba further discloses wherein the alternating signal is of an amplitude sufficient to cause the lens to shake with an amplitude of at least 0.8 to 1.0 times the track pitch (see the discussion in column 14 lines 13-51 particularly regarding a sine wave of ±10 μm and 250 Hz being applied to the objective lens and the track pitch of 1.6 μm, also note that when the objective lens is oscillated in a sine wave pattern it stops near its maximum and minimum points of its amplitude).

6. Claims 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view Ohta et al. (US Patent Number

<u>6,067,285) and Baba (US Patent Number 5,768,227), as applied to claims 4 and 1 above, and further in view of Fennema (US Patent Number 5,220,546).</u>

Regarding claim 5, the combination of Osborne, Ohta and Baba disclose the optical disc drive according to claim 4 as noted in the 35 U.S.C. 103(a) rejection above. While the combination of Osborne, Ohta and Baba fail to specifically disclose, Fennema clearly discloses wherein the detection means are adopted to generate a lens position signal which is indicative of the position of the lens with respect to the sledge (see the discussion or the RPE signal in column 6 lines 16-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fennema into the teachings of Osborne, Ohta and Baba. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to provide a precise servo positioning operation within the disk drive (as suggested by Fennema in column 7 lines 1-5).

Regarding claim 6, Fennema further discloses wherein the servo control unit has a non-tracking mode and wherein the servo control unit further comprises a lens position controller for outputting a lens position control signal to control the position of the lens in response to the lens position signal in the non-tracking mode (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 7, Fennema further discloses wherein the lens position signal is fed to a low-pass filter with a cut-off frequency less than the frequency of the alternating signal and an output of the low-pass filter is fed to the lens position controller

(Figure 8 element 161 and the discussion in column 8 lines 21-51 where both the TES and the RPE signal are fed into the low pass filter).

Regarding claim 8, Osborne further discloses wherein the servo control circuit further comprises means for combining the lens position control signal with the alternating signal to give a modulated signal to the lens position motor (see the discussion in column 10 lines 17-44).

Regarding claim 9, the combination of Osborne, Ohta and Baba disclose the optical disc drive according to claim 4 as noted in the 35 U.S.C. 103(a) rejection above. While Osborne, Ohta and Baba fail to specifically disclose, Fennema clearly discloses wherein the servo control circuit comprises a radial offset control feedback loop (see Figure 6 and the discussion in column 7 lines 6-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fennema into the teachings of Osborne, Ohta and Baba. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to provide a precise servo positioning operation within the disk drive (as suggested by Fennema in column 7 lines 1-5).

Regarding claim 10, Fennema further discloses wherein the radial offset control feedback loop is able to operate in a first mode and in a second mode, wherein in the first mode the lens is moved in a neutral position and a lens position offset in the lens position signal is measured and in the second mode the lens position signal is corrected

with the measured lens position offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 11, Fennema further discloses a micro-controller receiving an input from a user and providing an initialization signal in response to the user input (see the microprocessor in Figure 2 element 40 and the discussion in column 2 line 41 – column 3 line 13), wherein: first switching means responsive to the initialization signal are provided for selectively causing the lens position motor to allow the lens position to adopt a neutral position or cause the lens position motor to be controlled by the first motor control circuit (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20), and the radial offset control feedback loop comprises second switching means responsive to the initialization signal for selectively measuring a lens position offset of the lens position signal or correcting the lens position signal with the measured lens position offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 12, Fennema further discloses wherein the radial offset control feedback loop is able to operate in a first mode and in a second mode, wherein in the first mode the lens is moved in a neutral position and wherein a radial offset in the radial error signal is measured and wherein in the second mode the measured radial offset is subtracted from the radial error signal (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

Regarding claim 13, Fennema further discloses a micro-controller receiving an input from a user and providing an initialization signal in response to the user input (see

the microprocessor in Figure 2 element 40 and the discussion in column 2 line 41 – column 3 line 13), wherein: first switching means responsive to the initialization signal are provided for selectively causing the lens position motor to allow the lens position to adopt a neutral position or cause the lens position motor to be controlled by the first motor control circuit (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20), and the radial offset control feedback loop comprises third switching means responsive to the initialization signal for selectively measuring a radial offset of the radial error signal or correcting the radial error signal with the measured radial offset (see Figures 6 and 7 and the discussion in column 7 line 1- column 8 line 20).

7. ***Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (US Patent Number 5,107,107) in view Ohta et al. (US Patent Number 6,067,285), Baba (US Patent Number 5,768,227), and Fennema (US Patent Number 5,220,546), as applied to claim 9 above, and further in view of Bierhoff (US Patent Number 4,471,477).***

Regarding claim 14, the combination of Osborne, Ohta, Baba and Fennema disclose the optical disc drive according to claim 9 as noted in the 35 U.S.C. 103(a) rejection above. Osborne in combination with Ohta, Baba and Fennema fail to disclose, while Bierhoff discloses, wherein the radial offset control feedback loop has a time constant that is low with respect to the disc rotational frequency (column 4 line 33- column 5 line 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Osborne, Ohta, Baba and Fennema with that of Bierhoff. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to stabilize the loop gain and thus the bandwidth of the radial tracking control loop (Bierhoff column 2 lines 49-54).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571)270-

1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LaTanya Bibbins/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627